



CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

Name(s) Joseph I. Losner	Project Number S2208
Project Title The Attraction of the Beneficial Insect <i>Chrysoperla rufilaberis</i> to Wintergreen	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The world's food production is partially dependent upon effective pest control toward insects. Insecticides are problematic as they are often toxic and because insects often develop resistance toward them. There are other treatments that are not chemically based that include using carnivorous insects to drive away the herbivorous insects; however the problem encountered is keeping the insect at the plant site. Herbivore induced plant volatiles (HIPV) have been discovered as a communicant between carnivorous insects and plants. They function to attract predators that destroy the herbivorous insect attacking the plant. The purpose of these experiments was to test the attraction of <i>Chrysoperla rufilaberis</i> (Green Lacewing) larvae to the HIPV Wintergreen (methyl salicylate) and their prey, Green Peach Aphids.</p> <p>Methods/Materials This experimental design used choice chambers as a means for testing the environmental preference of Green Lacewing larvae. The choice chambers had three parts, a sealed control chamber, a sealed test chamber and a ventilated middle chamber that connected the control and test chamber. Methyl salicylate was tested at 0.1, 1, 10 and 100% in the presence and absence of aphids.</p> <p>Results The results showed that Lacewing larvae were attracted to aphids (positive control) validating the choice chamber method. In the middle and test chambers with aphids in combination with methyl salicylate (0.1 and 1%) there was a significantly greater number of Lacewing larvae than the control chambers ($p < 0.05$). The preference for the middle chamber was also shown with the control tests and may indicate a preference for ventilation. However methyl salicylate alone (0.1, 1, 10 and 100%) was not shown to be an attractant to the Lacewing larvae.</p> <p>Conclusions/Discussion The results confirm that the Green Lacewing larvae do function as beneficial insects as they were attracted to aphids in the test chambers. Several studies have been carried out with adult Lacewing species and have shown the ability of methyl salicylate to function as an attractant. The results in this study do not support methyl salicylate as an attractant for <i>Chrysoperla rufilaberis</i> larvae. This would indicate a difference in the ability of the methyl salicylate to attract the adult form of <i>Chrysoperla rufilaberis</i> versus the larval form.</p>	
Summary Statement The purpose of these experiments was to test the attraction of <i>Chrysoperla rufilaberis</i> (Green Lacewing) larvae to the HIPV Wintergreen (methyl salicylate) and their prey, Green Peach Aphids.	
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